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ABSTRACT

The process of assessing learner needs in Kentucky developed within a planned framework of tasks to be accomplished sequentially in a time frame directed toward an ultimate goal of comprehensive planning. One hundred specific needs categorized under 10 priority general needs of the state's learners were identified through a survey resulting in the development of learner performance objectives for grades 4, 7, and 11. Behavioral expectations are listed for each grade. Tests were then selected for assessing learner needs in mathematics, reading, and physical education. The assessment program was systematically broadened to include more districts in the sample and will eventually assess progress toward the achievement of all the goals of education concerning the cognitive, affective, and psychomotor needs of Kentucky school children which have been specified, published, and distributed statewide. Need areas are appearing after the fourth grade in certain reading and attitude areas. (Author/RC)

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KENTUCKY EDUCATIONAL ASSESSMENT PROGRAM

THREE-YEAR SUMMARY

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ABSTRACT

To meet the recommendations of the U.S. Office of Education, in 1969 the Kentucky Department of Education initiated a needs assessment study. By obtaining a significant sample of professional and lay citizen opinion concerning the criticality of learner needs in Kentucky and using the data generated from the sample in validating the representativeness of opinions expressed by a selected population, appropriate performance goals were identified for comprehensive program planning. Regional and state profiles of critical learner needs were developed from the first of several planned phases of needs assessment which set forth statements of performance objectives translated from the value judgements of the sample population regarding the criticality of learner needs.

The ultimate objective of the needs assessment study was to identify performance goals for comprehensive program planning. Thus, when the desired performance goals were identified the needs were translated into program goals and these programmatic objectives were consequently field tested in sample school districts to ultimately validate the established norms. The subsequent assessment process has expanded systematically to the extent that valid data now indicates areas of strengths and weaknesses in Kentucky school programs which have program strategy implications.

Highlights of the study show: the first phase of the Kentucky plan identified one-hundred specific needs categorized under ten priority general needs of the state's learners. Phase II was restricted to the development and field testing of performance goals and objectives concerning learner skills of reading and mathematics, grades 4, 7, and 11 (later assessments involved grades 4, 8, and 11). Goals were refined and field tested in the limited areas of mathematics, reading, physical fitness and selected pupil attitudes. As the task continued, the assessment program was systematically broadened to include more districts in the sample and will eventually assess progress toward the achievement of all the goals of education concerning the cognitive, affective, and psychomotor needs of Kentucky school children which have now been specified, published, and distributed statewide. Need areas are appearing after the fourth grade in certain reading and attitude areas. Efforts are being directed toward expansion of the scope of assessment and toward refined interpretations of the data which hold implications for program development.

INTRODUCTION

As education forces regroup and reflect on the effectiveness of the present programs and educational processes to meet the mounting challenge of accountability, it has become imperative to report just where we are and where we are going in public education. To lend credibility to our efforts and our requests for support of public education, it is essential that educators rely on something more than the traditional promises of quality education.

In the midst of rapid social organization, decline and re-organization planning processes must incorporate change as a variable of certainty with which educators must cope. Without a clear vision of where education is and where it is going, the school programs will become increasingly subjected to pressures to adopt fads without purpose or progress; of momentary goals which may have only slight relationships to the learner needs in its schools.

Thus, it is the responsibility of public education to reflect the best that is potentially in each community and its greater society. If a sense of purpose in communities is to survive the rapid social change which is being experienced, then education must provide models of purposeful realistic planning which is responsive to the basic, yet shifting needs of men. No longer can the public rely on the perceptions of one or a few school administrators for determining community needs, for communities have become far too complex for simple, assumptive analysis. The public insists on realistic progress reporting and accounting procedures to justify the mounting costs of education.

Then it is in this environment of rapid change, increased expectancy for educational accountability and mounting public concern for the high cost of public education that the needs assessment programs have developed in most states. Kentucky, too, is cognizant of the essential nature of this challenge of laying the groundwork for comprehensive planning if the educational task in the state is to be a viable and relevant process.

The plan for learner needs in Kentucky will ultimately provide indices of strengths and weaknesses in the present programs which will provide relevant information for future program planning or revision. The plan outlines a systematic procedure for determining the educational concerns or priorities of the citizenry which are then translated into learner performance goals through which program goals can be assessed for effectiveness in meeting these learner needs. Thus, systematic planning, evaluation, and management processes can be related to the educational concerns of the public.

RATIONALE

In Kentucky, as elsewhere, the schools' most critical need continues to be for more financial support for education. Continued favorable response to the request for more revenue for education is dependent upon the rationale provided for increased funding requested by enlightened educators. There is a collective responsibility for accountability among educators, legislators, parents, and the general public. The Kentucky Department of Education provides the leadership for the local districts and supplies their local leaders with the necessary facts and information about the progress of education in the state which is then shared with their citizenry. This leadership has directed the concerted efforts of citizens from every social and economic strata in Kentucky to cooperate with professional educators in identifying the following ten priority general needs of the learners in Kentucky.

- Learning skills
- Basic knowledge areas
- Vocational knowledge and skills
- Citizenship
- Human relations
- Physical and mental health
- New approaches to learning
- School readiness
- Social and economic disadvantages
- Physical or mental differences

Certain federal acts which allocated money for programs, such as Title III of the Elementary and Secondary Education Act, have provided the rationale and

the original impetus for the current state assessment plan in Kentucky. In the state plan, the original assessment goals have now been surpassed both in scope and in process goals.

PURPOSES

The purposes of this learner needs study were specifically:

1. to identify the needs of learners to be served.
2. to determine the criticality of the learner needs that are identified by applying judgmental values.
3. to establish performance goals for the alleviation of critical needs and develop programs to meet these critical needs.
4. to apply measures of accountability, based upon performance goals, to the progress of such programs.

ASSESSMENT MODEL

The assessment of learner needs in Kentucky is predicated upon the generation of a model of where learners "ought to be". The term "learner need" is used to denote those cognitive, affective, and psychomotor learnings in which pupils in Kentucky appear deficient. This concept of learner needs implies a model of what learners ought to be. Thus the Kentucky model would be classified as a deductive model.

PROCEDURES

The process of assessing learner needs in Kentucky has developed within a planned framework of tasks to be accomplished sequentially in a time frame directed toward an ultimate goal of comprehensive planning. The section which follows describes this process as it has occurred.

Respondents to Educational Concerns Survey

Table I shows the distribution of survey instruments. A Department Educational Needs Assessment Survey Committee was supplemented and assisted by a statewide Citizens Advisory Committee for Educational Needs Assessment which devised a strategy for developing the survey instrument and establishing the sample lists and the machinery for distributing and treating the survey forms when returned completed to the committee. Students were later sampled for their educational concerns to expand the representative aspects of the survey.

Sampling Procedures for Needs Assessment

The sampling procedures detailed in this description were determined adequate to arrive at regional norms. This description details the number of students for each grade and district to be included in the sample for the Needs Assessment. The districts participated on a voluntary basis. Interest in participating has increased rapidly to the extent that most districts in the state have voluntarily joined the assessment studies.

The following steps were taken in arriving at the sample figures:

1. The percent of statewide student enrollment for grades 4, 7, and 11 for each region was computed and applied to a sample size of 5,000 students to determine the number of students to be included for each region and grade level within region.

2. Assuming that the districts participating are representative of the various regions, the percent enrollment for each district and grade level was computed and applied to the regional figures arrived at in Step 1.

3. Where figures for particular districts for any grade level fell below a sample N of twenty-five, enough students were added to bring the sample N to at least twenty-five. This was done in order to assure

TABLE I
SURVEY RESPONSE PATTERNS

Survey Population Groups	Survey Instruments Distributed	Returned	Percentage Response
Public Schools			
Teachers	2,214	1,862	84%
Principals	395	360	91%
Superintendents	193	155	80%
Counselors	267	193	72%
Special Education	186	142	76%
Supervisors	298	233	78%
Title I Coordinators	120	98	81%
Dir. Pupil Personnel	246	183	74%
Others	453	325	72%
Board Members	665	367	53%
Total Public School Personnel	4,657	3,929	84%
Non-Public School Personnel	380	261	69%
Citizens Groups			
Kentucky Bankers' Association	85	39	46%
Kentucky Chamber of Commerce	320	98	30%
Kentucky Council of Parents and Teachers	219	80	37%
Council of Churches	245	73	30%
Broadcasters' Association	111	37	33%
Kentucky Farm Bureau	201	75	37%
Council on Higher Education	128	106	82%
Kentucky Municipal League	100	40	40%
Associated Industries of Kentucky	336	115	34%
Kentucky Federation of Women's Clubs	257	86	33%
Kentucky Medical Association	200	74	37%
Kentucky Press Association	150	26	17%
Economic Opportunity (OEO)	200	63	32%
AFL-CIO	100	14	14%
Human Rights Commission	50	21	42%
TOTALS	7,739	5,126	66%

that district feedback from the needs assessment testing would be based on enough students to be valid and usable for decision-making at the local level. Although the addition of students for particular districts does distort the percentage relationship to a slight degree, it is thought that the advantages of adding these students outweigh the disadvantages.

Procedures for Identifying Schools

Districts with three or less schools at any grade level required (4, 8, or 11) will identify all three schools to be sampled. Districts with more than three, but less than ten, will identify the schools to be sampled by numbering the schools consecutively on a proportionate basis and then drawing the numbers of two schools from a table of random numbers. School districts with more than ten schools will consecutively number each school on a proportionate basis and then draw from a table of random numbers twenty percent of the total number of schools as the sample number of schools.

By basing the sample on a proportionate basis of school population at each grade level and then by randomly selecting the sample, the district can assure that the sample of schools would be representative of the schools in the district and consequently representative of the schools in the region. A base figure of twenty-five pupils per grade was used to determine the proportionate listing of schools.

Procedures for Identifying Sample Students

1. a. Districts with one or three, or less, schools at any grade level will sample students from each school. The students required for the sample will be as evenly divided among the schools as possible. In addition, the number of students required from each school will be as evenly divided among the English class sections as possible.

   b. In order to randomly select the required number of students from each room, every fifth student will be selected, beginning with the row of students furthest to the left of the teacher as she faces the students and continuing down each row until the required number has been selected.

   c. Districts with more than four, but less than ten, schools at any grade level will sample from at least two schools. Those districts with more than ten schools will sample from 20% of the schools. When the schools have been identified, the procedure described above will be used to select the required number of students.

The follow-up procedures to the survey were designed to do the following:

2. Establish performance objectives for selected concerns from Phase I, specifically:

   a. learning skills (ranked first)
   b. human relations (ranked second)
   c. basic knowledge areas (ranked sixth)
   d. physical and mental health (ranked tenth)

TABLE II

THE TOP FIVE RANKED GENERAL AND SPECIFIC NEEDS

Rank Assignment	General Need	Specific Need
First	Learning Skills	1. Thinking logically and critically in solving problems. 2. Reading, writing, listening, mathematics, and speaking. 3. Analyzing their own learning skills, abilities, or needs and seeking assistance when it is needed. 4. Making choices and decisions based on the best information available. 5. Applying knowledge or information to problems in a variety of situations.
Second	Vocational Knowledge and Skills	1. Acquiring occupational skills and knowledge to qualify them for employment immediately after high school. 2. Understanding a wide variety of careers so that they will be better prepared to make wise choices. 3. Acquiring knowledge and skills to assume their dual roles as homemakers and wage earners with consumer education as an integral phase. 4. Developing basic occupational knowledge and skills at the high school level that lead to a planned post high school career program. 5. Assisting students with social, economic, and academic handicaps to prepare for their economic future.
Third	Human Relations	1. Knowing themselves and developing positive attitudes toward their strengths, weaknesses, attitudes, and behavior. 2. Understanding other people and developing positive attitudes for their worth and dignity regardless of age, sex, race, religion, or social status. 3. Accepting and appreciating work as a necessary part of their lives. 4. Accepting responsibility for their own actions and for society. 5. Wanting to learn and recognize the importance of learning in the fulfillment of their potential.

TABLE II (cont'd)
THE TOP FIVE RANKED GENERAL AND SPECIFIC NEEDS

Rank Assignment	General Need	Specific Need
Fourth	New Approaches to Learning	1. Opportunities to examine and resolve problems rather than memorize predetermined, isolated information. 2. Programs to provide for different and more productive ways of using learners' time in school. 3. Programs that change as the learners change and as new materials, equipment, methods, and knowledge become available. 4. Opportunities to learn on their own and at their own rate. 5. Opportunities for more individualized attention and assistance from instructional and guidance/counseling personnel.
Fifth	Citizenship	1. Understanding the individual's responsibilities in a democracy. 2. Understanding that for every right and privilege there is a corresponding responsibility. 3. Understanding the right and the limitation of dissent. 4. Understanding the structure and function of local government. 5. Practicing democracy and democratic processes within the school.

3. Collect baseline data in order to apply measures of accountability, based upon performance objectives related to the aforementioned concerns in order to determine learner needs.

Criterion measures and test items for an assessment package were developed to verify the levels of attainment of pupils in grades 4, 7, (later 8) and 11 in the areas shown in Table III.

The Educational Needs Assessment Guidelines prepared by the U.S. Office provided the guidelines for the further development of the assessment procedures in Kentucky, beginning in February 1970. Each year since, the sample of volunteer districts has increased steadily and the assessment of educational needs has been integrated with the attainment of specified educational goals for Kentucky schools which was recently published and made available to local school districts throughout the state.

Instrumentation

The survey questionnaire was designed to identify learner needs expressed as concerns in the three domains: cognitive, affective, and psychomotor. The instrument was validated by a pre-test sampling. The instrument provided the respondent opportunities to identify learner needs other than those included in the original draft. The distribution was by stratification among regional groupings of respondents to result in the total statewide sampling shown in Table I.

Respondents were asked to select the four general concerns which they felt should be given the most attention in their school districts. The respondents were then requested to further define their concerns in these same four selected general needs areas by selecting the four specific sub-needs for each learning skill needing the most attention in their districts. That is, each respondent identified four general needs and sixteen specific needs. An example of the nature of the items follows.

The first general need was for learning skills (those skills for learning the basic knowledge and acquiring the essential attitudes for effective learning). The first specific learning skill was "Thinking logically and critically in solving problems". Table II describes the top five general needs with the corresponding top five specific needs for each in the adjacent columns.

Tests Selected for the Learner Needs Assessment Pilot Study

The following tests were selected for assessing learner needs in mathematics and reading:

Grade 4: Comprehensive Test of Basic Skills, Form Q, Level I, published by California Test Bureau, a Division of McGraw-Hill Book Company, Monterey, California.

Grade 7: California Achievement Test, Form A, Level 4, published by California Test Bureau, a Division of McGraw-Hill Book Company, Monterey, California.

Grade 11: Stanford Achievement Test High School Battery, Form W, published by Harcourt, Brace and World, Inc., New York.

A student attitude inventory for grades 4, 7, (later 8) and 11 was selected to assess learner responses toward:

1. self
2. peers
3. reading
4. mathematics
5. school

The American Association for Health, Physical Education, and Recreation (AAHPER) Physical Fitness Test was selected to be given at the option of the participating school district. The test included pull-ups (boys), flexed-arm hang (girls), sit-ups, shuttle run, standing broad jump, fifty-yard dash, softball throw, and the 600-yard walk.

The variables selected for data collection and analysis were:

1. Geographic representation

   a. State
   b. ESEA Title III Regions (later discarded as sample size has increased and the state has adopted educational development districts)

2. Sex

   a. boy
   b. girl

3. Grade level

   a. four
   b. seven
   c. eleven

4. Adjusted gross income per pupil

   a. above median adjusted gross income per pupil
   b. below median adjusted gross income per pupil

5. Per pupil expenditure

   a. above median per pupil expenditure
   b. below median per pupil expenditure

6. Total student population by grade level

Data Collection

In February 1970, the concerns survey instruments were distributed to district superintendents and heads of private schools who followed the plan for further local distribution to a twenty-five percent sample of teachers in schools with eight or more teachers. Citizens' groups received their survey instruments in the mail from an official representing the group on the Advisory Committee. Table I shows the total response for each stratified group in the sampling.

In 1971, a sample of students were tested to determine the extent of pupil attainment in the areas derived from the educational concerns survey. These were selected randomly from within forty volunteer school districts in Kentucky. The following year the sample was drawn from 80 local districts. The sample in the assessment was drawn randomly from 120 districts in 1973.

As the sample size increased, plans were implemented to coordinate the statewide testing program with assessment data collection in the cognitive areas. This prevented duplication of testing efforts for the sample students and unnecessary expenditures of time and state funds.

Tests were mailed to local administrators who cooperated in the sample distribution, administration and return of the assessment instruments. In-service workshops were provided in testing procedures and interpretation of the district data. This latter activity is considered vital to the successful fulfillment of the ultimate purpose of assessment.

Data Analysis of General Needs from the Concerns Survey

Frequency ranking of the choices of the 5,126 respondents provided the primary measure of criticality of learner needs. After validation locally, the comparisons of ranking relationships was accomplished by a Spearman rank order correlation with significance fixed at .05. Table II shows how the top five General Needs were rank ordered with a significant agreement statewide. Table II also shows the same treatment of the data concerning the top five Specific Needs for each of the above. None of the rank order coefficients fell below the .05 level of significance, so there was assumed to be significant agreement among the total sample population on the criticality of Specific Needs in Kentucky.

In descending order of needed attention, General Needs of learners in Kentucky were defined in the following order as a result of the survey:

"Learners need more assistance with ..."

1. Learner Skills
2. Vocational Knowledge and Skills
3. Human Relations
4. New Approaches to Learning
5. Citizenship
6. Basic Knowledge Areas
7. Social and Economic Disadvantages
8. School Readiness
9. Physical or Mental Differences
10. Physical and Mental Health

A very low percent of the respondents took advantage of the free response or open end portion of the instrument.

Learner Performance Objectives Derived from the Concerns Survey

As a result of the survey and subsequent analysis, the following learner performance objectives were developed for grades 4, 8, and 11.

Listed are the basic minimum performance objectives for the majority of fourth, eighth, and eleventh graders in the participating school districts. Although the objectives are similar for all three grades, the content and

measurement details vary in difficulty as determined by items in the selected areas. More refined statements of objectives have been developed. However, the following general concepts are the same as those in the hierarchy of behavioral objectives used in the current assessment process.

Fourth Grade

1. Fourth grade students in reading are expected to score a 4.7 grade equivalent score by displaying ability to:

	Behavior	Concept or Skill	Comprehensive Tests of Basic Skills Measurement
1.	Know	vocabulary	CTBS Level 2
2.	Comprehend	words and phrases	CTBS Level 2
3.	Comprehend	reading content (sentences, paragraphs, stories)	CTBS Level 2
4.	Analyze	reading content (sentences, paragraphs, stories)	CTBS Level 2
5.	Apply	reference skills (dictionary, glossary, tables of content, index, library catalogue cards)	CTBS Level 2
6.	Apply	word attack skills (phonics, syllabication, word structure, context clues)	CTBS Level 2

2. Fourth grade students in mathematics are expected to score a 4.7 grade equivalent score by displaying ability to:

	Behavior	Concept or Skill	Comprehensive Tests of Basic Skills Measurement
1.	Apply	basic operations of whole numbers (addition, subtraction, multiplication, division)	CTBS Level 2
2.	Comprehend	units of measurement (time, money, linear)	CTBS Level 2
3.	Comprehend	numbers and numerals	CTBS Level 2
4.	Comprehend	terms and symbols (operations)	CTBS Level 2
5.	Know	geometry	CTBS Level 2
6.	Apply	problem solving skills	CTBS Level 2
7.	Comprehend	graphs and charts	CTBS Level 2
8.	Comprehend	properties (associative, cumulative, distributive, zero, unity)	CTBS Level 2
9.	Comprehend	sets (union, empty, intersection, subsets)	CTBS Level 2

3. Fourth grade students will respond positively toward self, school, peers, math, reading as measured by the Kentucky Student Attitude Inventory.

4. Fourth grade students will demonstrate precision according to AAHPER satisfactory scores on selected psychomotor skills as measured by the AAHPER Physical Fitness Test. This area is not covered in the recent assessment efforts due to the need for further refinements.

Eighth Grade

1. Eighth grade students in reading are expected to score a 8.7 grade equivalent score by displaying ability to:

	Behavior	Concept or Skill	Comprehensive Tests of Basic Skills Measurement
1.	Know	vocabulary	CTBS Level 3
2.	Comprehend	words and phrases	CTBS Level 3
3.	Comprehend	reading content (sentences, paragraphs, stories)	CTBS Level 3
4.	Apply	word attack skills (phonics, syllabication, word structure, context clues)	CTBS Level 3
5.	Analyze	reading content (sentences, paragraphs, stories)	CTBS Level 3
6.	Apply	reference skills (dictionary, glossary, tables of content, index, library catalogue cards)	CTBS Level 3

2. Eighth grade students in mathematics are expected to score a 8.7 grade equivalent score by displaying ability to:

	Behavior	Concept or Skill	Comprehensive Tests of Basic Skills Measurement
1.	Apply	basic operations of whole numbers (addition, subtraction, multiplication, division)	CTBS Level 3
2.	Comprehend	units of measurement (money, linear, liquid)	CTBS Level 3
3.	Comprehend	numbers and numerals	CTBS Level 3
4.	Comprehend	terms and symbols (operations)	CTBS Level 3
5.	Comprehend	sets (union, empty, intersection, subsets)	CTBS Level 3
6.	Comprehend	properties (associative, cumulative, distributive, zero, unity)	CTBS Level 3
7.	Apply	problem solving skills	CTBS Level 3
8.	Comprehend	graphs and charts	CTBS Level 3

3. Eighth grade students will respond positively toward self, school, peers, math, reading as measured by the Kentucky Student Attitude Inventory.

4. Eighth grade students will demonstrate precision according to AAHPER satisfactory scores on selected psychomotor skills as measured by the AAHPER Physical Fitness Test.

Eleventh Grade

1. Eleventh grade students in reading are expected to score a 50.0 T-standard score (later changed to grade equivalents of 11.7) by displaying their ability to:

	Behavior	Concept or Skill	Comprehensive Tests of Basic Skills Measurement
1.	Comprehend	words and phrases	CTBS Level 4
2.	Comprehend	reading content (sentences, paragraphs, stories)	CTBS Level 4
3.	Analyze	reading content (sentences, paragraphs, stories)	CTBS Level 4
4.	Know	vocabulary	CTBS Level 4
5.	Apply	word attack skills (phonics, syllabication, word structure, context clues)	CTBS Level 4
6.	Apply	reference skills (dictionary, glossary, tables of content, index, library catalogue cards)	CTBS Level 4

2. Eleventh grade students in mathematics are expected to score a 50.0 T-standard scored by displaying ability to:

	Behavior	Concept or Skill	Comprehensive Tests of Basic Skills Measurement
1.	Apply	basic operations of whole numbers (addition, subtraction, multiplication, division)	CTBS Level 4
2.	Comprehend	units of measurement (time, money, linear, liquid)	CTBS Level 4
3.	Comprehend	terms and symbols (operations)	CTBS Level 4
4.	Comprehend	numbers and numerals	CTBS Level 4
5.	Know	geometry (points, lines, planes, angles)	
6.	Comprehend	properties (associative, cumulative, distributive, zero, unity)	CTBS Level 4
7.	Apply	problem solving skills	CTBS Level 4
8.	Comprehend	sets (union, empty, intersection, subsets)	CTBS Level 4
9.	Comprehend	graphs and charts	CTBS Level 4

3. Eleventh grade students will respond positively toward self, school, peers, math, reading as measured by the Kentucky Student Attitude Inventory.

4. Eleventh grade students will demonstrate precision according to AAHPER satisfactory scores on selected psychomotor skills as measured by the AAHPER Physical Fitness Test.

Data Analysis for the Needs Assessment Testing

The performance objective that expressed the performance level of expected behavior for a pupil or pupils in regard to selected areas of concerns were assessed with appropriate measurement instruments. Presently the Comprehensive Tests of Basic Skills are utilized with all grades being tested in the statewide assessment. Objective referenced measures have been developed for certain areas where standardized materials did not satisfy the requirements for measuring certain behavioral outcomes. By establishing a level of expected performance, learner needs were identified when actual performance was significantly below the expected pupil performance as measured by specific instruments.

A summary of the results for Kentucky pupils is provided in Tables III, IV, and V for the years 1971, 1972, and 1973. Actual attainment levels in relation to expected performance levels are presented in general skill areas and specific skills/concepts by goal area. The goal area represented in Tables III, IV, and V is specifically that "each citizen of the Commonwealth should be assured of an opportunity to realize his full potential in general education". This general education goal was assessed in the areas of (1) reading, (2) language, (3) arithmetic, and (4) study skills using the Comprehensive Tests of Basic Skills. For each grade level tested, the criterion of grade level plus seven tenths grade equivalents was established as the level of desired performance. For example, fourth grade pupils were expected to perform at the level of 4.7 grade equivalency. Earlier testing utilized T scores as the criteria for the eleventh grade.

Results from Table III indicate that in 1971 the cognitive area of arithmetic concepts was the only fourth grade area tested in which the criteria was attained in the state average. Certain strengths and weaknesses were disclosed in several curriculum areas for each district within the state. The greatest weakness assessed in the state results for the fourth grade was in the reading vocabulary skills.

In 1972, the criteria was attained in state means for all of the fourth grade cognitive skills area except those of reading vocabulary and arithmetic application. These same areas appeared weak in the 1973 assessment results. Also deficient were the areas of language expression, spelling, arithmetic comprehension, arithmetic concepts and arithmetic application. Performance in graphic material concepts also failed to attain the criteria. However, reading comprehension improved still further to represent the highest performance level for fourth grade pupils in the cognitive skills in state means.

After the third year of assessment testing, patterns have developed in the state means as well as for individual districts. The district boundaries were different for the third year of the assessment program; however, the sampling technique provided valid results for local district, Educational Development District, or Title III regions and statewide results. Therefore, analysis of data could be utilized at various organizational levels for program development purposes. Generally the lowest grade tested in the State Assessment Plan showed the best skill attainment averages exceeding or approaching the criteria (4.7 grade equivalent) most often. Subsequent grades showed a gradual decline of average pupil achievement in the assessment results.

The results of the 1973 assessment indicated continued weakness in certain cognitive areas in state fourth grade results. This was also true in Educational Development Districts which replaced the Title III districts in this study.

Reading vocabulary and arithmetic computation were again somewhat deficient, as were all other areas with the exception of those of reading comprehension, language mechanics and use of reference materials. Again local district and regional results were meaningful in local program planning implications. However, the fact should be noted that fourth grade pupils in Kentucky approached the national norms so closely that, in a normative sense, there were no drastic weakness. Later grades have not maintained this level of achievement as shown in Table IV and Table V.

The seventh and later the eighth grades have repeated the pattern of weakness in reading vocabulary skills and in arithmetic concept skills when considering the state means. Among districts there is a wide range of achievement from grade equivalent means from 1.5 below the criteria to 2.4 above the criteria. The grade and the measurement instruments changed in 1973 (Table IV); however, the areas of strength and weakness remained the same. Language expression, closely related to the reading vocabulary, was perhaps the weakest skill area for the sample of grade 8 in 1973. State means disclosed no areas of strength, but regional results indicated a considerable range of skill attainment among the districts.

Eleventh grade results (Table V) indicate a similar range of differences with acceleration of declining attainment below the criteria for that grade level. This decline is evident even among the districts exceeding the skill attainment criteria. In no cognitive skills area was the criteria met in the state averages. There was consistency in the regions and local districts indicating that some were consistently weak while others did attain or exceed the criteria for some cognitive skill areas.

TABLE III -- SUMMARY OF KENTUCKY EDUCATIONAL NEEDS ASSESSMENT
RESULTS IN COGNITIVE AREAS: GRADE 4

TESTING DATA			COGNITIVE AREA ASSESSED									
Region of State	Sample Size	Criteria	Reading Vocab.	Reading Comp.	Lang. Mech.	Lang. Express.	Spelling	Arith. Comp.	Arith. Concepts	Arith. App.	Refer. Mater.	Graphic Mater.
ESEA Title III Region			RESULTS FOR 1971[2]									
I	227	4.7	4.8[1]	5.1[1]				4.5	5.0[1]	4.5		
II	262	4.7	4.6	4.7[1]				4.6	4.7[1]	4.4		
III	417	4.7	5.0[1]	5.3[1]				4.7[1]	5.4	5.1[1]		
IV	542	4.7	4.4	4.4				4.4	4.4	4.1		
V	180	4.7	4.3	4.3				4.5	4.5	4.2		
VI	312	4.7	3.8	3.9				4.3	4.1	4.0		
VII	285	4.7	4.3	4.5				4.5	4.6	4.2		
State	2,232	4.7	4.5	4.6				4.5	4.7[1]	4.4		
ESEA Title III Region			RESULTS FOR 1972[2]									
I	194	4.7	4.7[1]	4.8[1]				4.8[1]	4.8[1]	4.5		4.6
II	186	4.7	4.2	4.1				4.6	4.5	4.5		4.4
III	31	4.7	6.0[1]	6.0[1]				4.6	5.2[1]	4.9[1]		5.3[1]
IV A	120	4.7	4.9[1]	5.0[1]				4.8[1]	5.2[1]	5.2[1]		5.0[1]
IV B	245	4.7	5.0[1]	5.3[1]				5.0[1]	5.2[1]	5.0[1]		5.4[1]
V	138	4.7	4.7[1]	4.6				4.8[1]	4.7[1]	4.5		4.4
VI	244	4.7	4.1	4.1				4.4	4.2	4.3		4.1
VII	238	4.7	4.7[1]	4.7[1]				4.8[1]	4.8[1]	4.6		5.0[1]
State	1,396	4.7	4.6	4.7[1]				4.8[1]	4.7[1]	4.6		4.7[1]
Educational Development District[3]			RESULTS FOR 1973[2]									
1	207	4.7	5.1[1]	5.3[1]	5.5[1]	5.4[1]	5.0[1]	4.8[1]	4.9[1]	4.7[1]	5.0[1]	4.9[1]
2	343	4.7	4.5	4.6	4.9[1]	4.5	4.4	4.5	4.5	4.3	4.5	4.4
3	215	4.7	4.7[1]	5.0[1]	5.6[1]	5.0[1]	4.8[1]	4.9[1]	5.0[1]	4.4	5.0[1]	4.8[1]
4	323	4.7	4.4	4.6	4.9[1]	4.5	4.5	4.6	4.7[1]	4.6	4.8[1]	4.7[1]
5	231	4.7	4.3	4.4	4.6	4.1	4.5	4.5	4.3	4.3	4.5	4.4
6	220	4.7	4.5	4.6	4.4	4.4	4.3	4.5	4.6	4.3	4.7[1]	4.6
7	484	4.7	4.8[1]	4.9[1]	5.0[1]	4.8[1]	4.8[1]	4.5	5.0[1]	4.7[1]	4.9[1]	4.9[1]
8	34	4.7	6.2[1]	5.8[1]	6.5[1]	6.8[1]	5.8[1]	5.3[1]	6.1[1]	5.9[1]	5.8[1]	7.1[1]
9	321	4.7	4.5	4.6	5.0[1]	4.8[1]	4.7[1]	4.8[1]	4.8[1]	4.8[1]	4.8[1]	4.7[1]
10	236	4.7	4.8[1]	5.1[1]	5.7[1]	4.9[1]	4.9[1]	4.9[1]	4.9[1]	4.8[1]	5.2[1]	5.3[1]
11	260	4.7	4.3	4.3	4.7[1]	4.3	4.1	4.4	4.3	4.3	4.4	4.2
12	419	4.7	4.0	4.0	4.3	4.0	3.9	4.2	3.9	4.1	4.0	4.0
13	483	4.7	4.1	4.2	4.6	4.2	4.2	4.3	4.2	4.2	4.3	4.2
14	282	4.7	4.5	4.6	5.5[1]	4.6	4.7[1]	4.9[1]	4.7[1]	4.7[1]	4.6	4.6
15	319	4.7	4.7[1]	5.0[1]	5.2[1]	5.0[1]	4.7[1]	4.9[1]	4.8[1]	4.7[1]	4.8[1]	5.1[1]
16	179	4.7	5.2[1]	5.4[1]	5.5[1]	5.5[1]	5.0[1]	4.9[1]	5.2[1]	5.1[1]	5.0[1]	5.3[1]
State	4,556	4.7	4.5	4.7[1]	5.0[1]	4.6	4.5	4.6	4.6	4.5	4.7[1]	4.6

[1] Criteria attained
[2] Results from CTBS, Form Q, Level 2
[3] Data collection changed from Title III Regions to new regionalization pattern. Title III regional boundaries were adjusted to new pattern.

TABLE IV -- SUMMARY OF KENTUCKY EDUCATIONAL NEEDS ASSESSMENT
RESULTS IN COGNITIVE AREAS: GRADES 7 AND 8

TESTING DATA			COGNITIVE AREA ASSESSED									
Region of State	Sample Size	Criteria	Reading Vocab.	Reading Comp.	Lang. Mech.	Lang. Express.	Spelling	Arith. Comp.	Arith. Concepts	Arith. App.	Refer. Mater.	Graphic Mater.
ESEA Title III Region			RESULTS FOR 1971[2]									
I	223	7.7	7.7[1]	7.9[1]				8.1[1]	7.7[1]			
II	276	7.7	7.7[1]	7.7[1]				7.6[1]	7.6			
III	418	7.7	7.6	7.7[1]				7.6[1]	7.5			
IV	354	7.7	6.6	6.8				6.8	6.4			
V	175	7.7	6.6	6.7				7.6	7.0			
VI	296	7.7	6.3	6.3				6.8	6.2			
VII	264	7.7	7.2	7.2				7.7[1]	7.4			
State	2,006	7.7	7.1	7.2				7.4	7.1			
ESEA Title III Region			RESULTS FOR 1972[2]									
I	227	7.7	7.7[1]	7.9[1]				7.7[1]	7.6			
II	228	7.7	7.4	7.8[1]				7.6	7.4			
III	432	7.7	7.3	7.5								
IV A	64	7.7	7.4	7.7[1]				7.2	7.3			
IV B	124	7.7	7.0	6.8				6.8	6.6			
V	144	7.7	6.6	6.8				7.4	6.8			
VI	294	7.7	6.5	6.6				7.1	6.6			
VII	240	7.7	7.0	6.9				7.3	7.1			
State	1,753	7.7	7.1	7.3				7.3	7.1			
Educational Development District[4]			RESULTS FOR 1973[3]									
1	236	8.7	8.4	8.7[1]	8.7[1]	8.7[1]	8.6	8.7[1]	8.8[1]	8.3	8.7[1]	9.2[1]
2	441	8.7	7.8	7.7	8.0	7.6	8.2	7.7	7.9	7.6	7.9	8.0
3	135	8.7	7.5	7.6	7.9	7.2	8.4	8.0	8.1	7.7	8.0	8.2
4	363	8.7	7.4	7.3	7.6	7.2	7.7	7.8	7.7	7.3	7.7	7.8
5	275	8.7	7.4	7.4	7.7	7.2	7.8	7.7	7.6	7.4	7.5	7.7
6	181	8.7	7.2	7.3	7.7	6.9	7.7	7.5	7.2	7.2	7.4	7.7
7	409	8.7	8.4	8.4	8.1	8.3	8.3	8.5	8.2	8.1	8.4	8.6
8	26	8.7	10.8[1]	10.5[1]	10.0[1]	10.5[1]	9.8[1]	10.5[1]	10.3[1]	10.6[1]	10.5[1]	11.4[1]
9	263	8.7	7.3	7.2	7.8	7.3	7.7	7.8	7.8	7.2	7.4	7.4
10	121	8.7	9.1[1]	9.6[1]	9.8[1]	9.4[1]	9.6[1]	9.5[1]	9.6[1]	9.2[1]	9.5[1]	10.0[1]
11	298	8.7	7.0	7.0	7.1	7.1	7.4	7.6	7.4	7.4	7.8	7.1
12	423	8.7	7.0	7.3	7.6	7.2	7.6	7.4	7.6	7.2	7.4	7.2
13	563	8.7	6.9	6.9	7.3	7.1	7.5	7.3	7.2	7.1	7.2	7.1
14	213	8.7	7.5	7.6	8.2	7.5	8.0	7.9	8.0	7.8	7.9	8.1
15	238	8.7	7.7	7.7	7.8	7.2	7.8	7.6	7.9	7.5	7.8	8.0
16	89	8.7	8.2	8.7[1]	8.1	8.8[1]	8.5	8.7[1]	8.6	8.2	8.3	8.8[1]
State	4,273	8.7	7.6	7.6	7.8	7.5	7.9	7.8	7.9	7.6	7.8	7.9

[1]Criteria attained
[2]Results from California Achievement Test
[3]Results from CTBS, Form Q, Level 3
[4]Data collection changed from Title III Regions to new regionalization pattern. Title III regional boundaries were adjusted to new pattern.

TABLE V -- SUMMARY OF KENTUCKY EDUCATIONAL NEEDS ASSESSMENT
RESULTS IN COGNITIVE AREAS: GRADE 11

TESTING DATA			COGNITIVE AREA ASSESSED									
Region of State	Sample Size	Criteria	Reading Vocab.	Reading Comp.	Lang. Mech.	Lang. Express.	Spelling	Arith. Comp.	Arith. Concepts	Arith. App.	Refer. Mater.	Graphic Mater.
ESEA Title III Region						RESULTS FOR 1971[3]						
I	144	50.0[2]		51.3[1]				52.1[1]	54.3[1]			
II	163	50.0		49.1				49.3	51.9[1]			
III	314	50.0		52.3[1]				51.8[1]	55.4[1]			
IV	237	50.0		48.4				50.8[1]	53.3[1]			
V	133	50.0		49.4				49.9	49.6			
VI	190	50.0		47.2				45.5	48.8			
VII	186	50.0		48.8				49.0	50.2			
State	1,367	50.0		49.7				50.0[1]	52.3[1]			
ESEA Title III Region						RESULTS FOR 1972[3]						
I	177	50.0[2]		48.6				48.9	50.0[1]			
II	140	50.0		49.1				48.7	50.6[1]			
III	314	50.0		50.0[1]				50.0[1]	53.2[1]			
IV	164	50.0		49.1				50.5[1]	52.1[1]			
V	124	50.0		47.6				47.3	49.4			
VI	197	50.0		48.2				46.9	49.8			
VII	160	50.0		50.4[1]				50.8[1]	52.3[1]			
State	1,068	50.0		49.1				49.[illegible]	51.4[1]			
Educational Development District[5]						RESULTS FOR 1973[4]						
1	221	11.7	10.7	11.0	10.8	10.7	10.7	11.0	11.3	10.8	10.8	11.2
2	420	11.7	9.9	10.3	10.3	10.0	10.5	10.2	10.4	10.3	10.1	10.2
3	131	11.7	9.9	10.3	10.6	9.8	10.3	9.7	9.7	9.7	9.7	9.4
4	278	11.7	10.2	10.4	10.5	9.9	10.7	10.2	[illegible]	10.3	10.0	9.8
5	226	11.7	10.0	10.6	10.9	10.2	10.7	10.7	10.6	10.6	10.2	10.5
6	65	11.7	9.4	10.3	10.4	9.9	9.5	9.5	9.9	9.6	9.6	9.8
7	323	11.7	11.3	11.5	11.5	11.4	11.4	11.3	11.8[1]	11.4	11.5	11.5
9	216	11.7	9.8	10.0	9.9	9.8	10.4	10.3	10.7	10.2	9.4	9.8
10	57	11.7	10.3	10.7	11.0	9.9	10.7	10.1	9.9	9.6	10.3	10.0
11	228	11.7	9.4	10.2	10.3	9.5	10.4	9.7	10.1	10.0	10.0	9.9
12	252	11.7	9.4	10.2	10.0	9.9	10.1	9.3	10.3	9.9	9.3	9.4
13	515	11.7	9.0	9.6	9.7	9.0	9.9	9.2	9.4	9.5	9.0	8.8
14	182	11.7	9.7	9.9	10.3	9.5	10.3	9.7	10.3	10.0	9.7	10.0
15	212	11.7	10.0	10.2	9.7	9.8	10.2	10.0	10.2	9.9	10.1	10.0
16	91	11.7	11.1	11.5	11.4	11.2	11.2	10.1	10.6	10.2	11.3	10.8
State	3,417	11.7	10.0	10.4	10.4	10.0	10.5	10.1	10.4	10.2	10.0	10.0

[1]Criteria attained
[2]50.0 T-standard score
[3]Results from Stanford Achievement Test
[4]Results from CTBS, Form Q, Level 4
[5]Data collection changed from Title III Regions to new regionalization pattern. Title III regional boundaries were adjusted to new pattern.

Implications

The assessment results show some trends that indicate regional differences in educational effectiveness when considered in terms of the major educational concerns expressed by the statewide survey. The western regions generally attained the criteria somewhat more than did the regions in the eastern portion of the state. Certain program differences also exist, and it may prove worthwhile to investigate the relationships between programs, practices, and demographic differences between the extreme districts with their respective levels of skill attainment.

In addition to current assessment results for college-bound students, results from ACT and college board scores from these same student groups exceed or attain the national average on these various instruments. This implies that the educational system is attuned to the needs of the competent college-bound student. The same cannot be said for meeting the needs of the less capable student who terminates his formal education at some time prior to post high school work.

The learning needs of the early elementary grades appear to be satisfied more adequately prior to the fourth grade, but less thereafter. This is a trend not unlike that found nationally for the typical disadvantaged or culturally different pupil. This implies that educators should take another look at what happens to the middle grade child in present school programs that contribute to this trend.

Reading vocabulary is consistently weak throughout the grades in most local districts in Kentucky. However, language mechanics do not appear weak in the early grades. Further, the reading comprehension scores seem to be improving slightly in those regions which showed the most need in earlier reading testing. The impact of the federal programs such as Title I and Title III may possibly account for this improvement. Further analysis based on data collected in the upcoming assessment may provide more insights into constitutive programmatic elements that contribute to these trends.

Mathematics, a curriculum area recently felt to be more closely related to schooling affects, appears to have consistent patterns of strengths and weaknesses. The current criticisms being voiced against the so-called new math might provide some clue as to possible causes of the declining arithmetic applications attainment levels when compared to the more nearly adequate arithmetic concepts attainment. The measurement instruments allow minute analysis to more accurately identify specific skill weaknesses. This may eventually result in revisions or improvements in existing instructional programs for the state as well as within local districts.

The assessment results are now accumulating to the extent that additional implications will be discovered as more local district leaders become more adept at analyzing and interpreting their own assessment results when compared to their surrounding region, the state and to national norms. In-service workshops with guidance personnel and administrators have been initiated to encourage local involvement in discovering the ultimate usefulness which is possible when the State Assessment Plan is fully implemented in Kentucky. The impact of the assessment results is now only beginning to be realized in the program planning process in the state. In the future, further development and full implementation of a comprehensive assessment plan will ultimately result in valid measurements of progress toward the achievement of all the goals of education throughout Kentucky.